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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,435	10/17/2003	Robert Mandelbaum	SAR 14821	1555
55549	7590	05/08/2006	EXAMINER	
MOSER IP LAW GROUP / SARNOFF CORPORATION			LIU, MICHAEL	
1040 BROAD STREET			ART UNIT	
2ND FLOOR			PAPER NUMBER	
SHREWSBURY, NJ 07702			2851	

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/688,435

Applicant(s)

MANDELBAUM ET AL.

Examiner

Michael Liu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20031017, 20040628, 20060223</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because Figures 3, 5, and 6 have a typo. 22 should be labeled "Pointing devices," not "Printing devices." Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The use of the trademarks Windows, Acadia, and Pyramid Vision Technologies, Inc. has been noted in this application. It should be capitalized wherever it appears and

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be accompanied by the generic terminology. Please include the trademark sign TM when referring to trademarks.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3, 4, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al. (2002/0036649).

5. With respect to claim 1, Kim et al. discloses a panoramic visualization system (see Figure 1), comprising: a plurality of cameras (100), each of which produces image data from its field of view, wherein each camera's field of view overlaps (see Figure 1) with a neighboring field of view; a pointing device (tracker 150) for supplying view port direction information; and a processing system (170) for receiving said view port direction information and said image data from said plurality of cameras, said processing system for producing view port data from said received image data in response to said received view port direction information, wherein said processing

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system blends said image data from overlapping fields of view to produce panoramic view data that represents a panoramic view (110), wherein said view port data represents a portion of said panoramic view that is selected by said view port direction information; and wherein said processing system corrects the view port data for relative positions of said plurality of cameras.

6. With respect to claims 3 and 4, Kim et al. teaches a display device (head mounted display 160) for displaying said view port data.

7. With respect to claim 8, Kim et al. teaches said processing system corrects said view port data for roll, pitch, or yaw (see Abstract).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2, 5, 6, 10, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Foote (2002/0122113).

10. With respect to claims 2 and 15, Kim et al. discloses all limitations of the claimed invention except that the processing system corrects for lens distortion. It is inherent within the structure of a camera that it contains a lens. Foote teaches said processing system corrects said view port data for lens distortion of said plurality of cameras (See Figure 15 to view how the lens distortion of Figure 14 is corrected). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the

correction capability of Foote in the processing system of Kim et al. The motivation for doing so would be to correct distortion at the edge of the round lens.

11. With respect to claim 5, Kim et al. discloses the panoramic visualization system of claim 1. Kim et al. does not disclose expressly a control assembly. Foote discloses a control assembly that produces control information, wherein said processing system produces said first view port data based on said control information (Paragraphs 0145-0146 describe a control assembly). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the control assembly of Foote to the invention of Kim et al. The motivation for doing so would be to have zoom and other capabilities.

12. With respect to claim 6, Kim et al. discloses said pointing device (tracker 150) is selected from a group comprising of a mouse, a head tracker, a touch screen, and a joystick.

13. With respect to claim 10, Kim et al. discloses the panoramic visualization system according to claim 1. Kim et al. does not expressly disclose that the processing system employs a vision processing board. Foote discloses a description of a vision processing board in Paragraph 0146. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use this vision processing board of Foote as the processor in the invention of Kim et al. The motivation for doing so would be to speed up the computation time.

14. With respect to claims 16, Kim et al. discloses a display device (head mounted display 160) for displaying said view port data.

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15. With respect to claims 17 and 18, Kim et al. discloses that multiple view port direction information (direction of A and B) is obtained, and wherein multiple panoramic views (A and B), each selected by associated view port direction information, are produced and displayed.

16. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Foote as applied to claim 15 above, and further in view of Hansen et al. (6,081,606).

17. Kim et al. as combined discloses all limitations of the claimed invention except for the processing automatically tracking a moving object. Hansen et al. discloses processing that automatically tracks a moving object (The Abstract states, "Apparatus and a concomitant method of identifying the direction of motion within a scene that is represented by a sequence of images."). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to install the movement tracker capabilities of Hansen et al. into the invention of Kim et al. The motivation for doing so would be to obtain the regions of interest by identifying and tracking the regions where movement is present.

18. Claims 7 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Hansen et al.

19. With respect to claims 7 and 11, Kim et al. discloses a panoramic visualization system, comprising: a plurality of cameras, each of which produces image data from its field of view, wherein each field of view overlaps with a neighboring field of view; a first pointing device (150 of A) for supplying first view port direction information (A); a second

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pointing device (150 of B) for supplying second view port direction information (B); and a processing system (170) for receiving said first view port direction information, said second view port direction information, and said image data from said plurality of cameras, said processing system for producing first view port data from said received image data in response to said received first view port direction information, said processing system further for producing second view port data from said received image data in response to said received second view port direction information, wherein said processing system blends image data from overlapping fields of view to produce panoramic view data that represents a panoramic view (110), wherein said first view port data represents a portion of said panoramic view that is selected by said first view port direction information, wherein said second view port data represents a portion of said panoramic view that is selected by said second view port direction information.

Kim et al. does not expressly disclose that one of the view ports tracks a moving object. Hansen et al. discloses that at least one of the view ports automatically tracks a moving object (The Abstract states, "Apparatus and a concomitant method of identifying the direction of motion within a scene that is represented by a sequence of images."). It would have been obvious to one of ordinary skill in the art at the time the invention was made to install the movement tracker capabilities of Hansen et al. into the invention of Kim et al. The motivation for doing so would be to obtain the regions of interest by identifying and tracking the regions where movement is present, which are generally the regions of interest.

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20. With respect to claims 12 and 13, Kim et al. discloses a first display device (HMD of A 160) for displaying said first view port data and a second display device (HMD of B 160) for displaying said second view port data.

21. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Hansen et al. as applied to claim 11 above, and further in view of Foote.

22. Kim et al. as combined discloses the panoramic visualization system according to claim 11. Kim et al. as combined does not expressly disclose a control assembly. Foote discloses a control assembly that produces control information, wherein said processing system produces said first view port data based on said control information. Paragraphs 0145-0146 describe a control assembly. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the control assembly of Foote to the invention of Kim et al. as combined. The motivation for doing so would be to have zoom and other capabilities.

23. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Tuck (4,772,942).

24. Kim et al. discloses the panoramic visualization system according to claim 1. Kim et al. does not disclose expressly the cameras are mounted on a vehicle. Tuck discloses in the Abstract a plurality of cameras mounted on a moving vehicle. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to mount the panoramic visualization system of Kim et al. onto a vehicle as taught by Tuck. The motivation for doing so would be to expand the use of the system in other environments.

25. Claims 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. in view of Tuck and further in view of Hansen et al.

26. Kim et al. discloses a system comprising: a plurality of cameras (100), wherein each camera produces image data from its field of view, and wherein each camera's field of view overlaps (see Figure 1) with a neighboring field of view; a pointing device (150) for supplying view port direction information; and a processing system (170) for receiving said view port direction information and said image data from plurality of cameras, said processing system for producing view port data from said received image data in response to said received view port direction information, wherein said processing system blends said image data from overlapping fields of view to produce panoramic view data that represents a panoramic view (110), and wherein said view port data represents a portion of said panoramic view that is selected by said view port direction information. Kim et al. does not disclose expressly a vehicle body to mount the plurality of cameras, nor the processing system tracking an object.

Tuck discloses in the Abstract a plurality of cameras mounted on a moving vehicle. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to mount the panoramic visualization system of Kim et al. onto a vehicle as taught by Tuck. The motivation for doing so would be to expand the use of the system in other environments.

Hansen et al. discloses that the processing system automatically tracks a moving object (The Abstract states, "Apparatus and a concomitant method of identifying the direction of motion within a scene that is represented by a sequence of images."). It

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would have been obvious to one of ordinary skill in the art at the time the invention was made to install the movement tracker capabilities of Hansen et al. into the invention of Kim et al. as combined. The motivation for doing so would be to obtain the regions of interest by identifying and tracking the regions where movement is present.

Telephone Numbers

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Liu whose telephone number is (571) 272-9019. The examiner can normally be reached on Monday through Friday 9 am - 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Liu
Examiner
Art Unit 2851

ml


JUDY NGUYEN
SUPERVISORY PATENT EXAMINER